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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,307	11/14/2003	Hitesh Windlass	42P16665	1224

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EXAMINER	
WILCZEWSKI, MARY A	

ART UNIT	PAPER NUMBER
2822	

MAIL DATE	DELIVERY MODE
10/17/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/713,307	WINDLASS ET AL.	
	Examiner	Art Unit	
	M. Wilczewski	2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 August 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) *22-29* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office action is in response to the Amendment and Request for Continued Examination filed August 6, 2007.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 6, 2007, has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 6, 9, 11, 12, 19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumar, US Patent 5,321,533, newly cited.

Kumar discloses heating a ferroelectric polymer comprising a polymer material formed on a substrate at a temperature of 150 °C; aligning a plurality of domains of the polymer material in a direction relative to the substrate; and cooling the temperature of

the polymer material while maintaining the alignment, see figures 1A, 1B, 2A-2C and column 9, lines 20-38. Kumar does not expressly disclose that the ferroelectric polymer is heated to a temperature at least as high as a Curie temperature of the polymer material. However, since Kumar heats to a temperature of 150 °C that causes alignment of domains of the polymer material, it is obvious that this temperature is at least as high as the Curie temperature of the polymer material.

Claims 2, 4, 7, 8, 13, 15, 17, and 18 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Kumar, US Patent 5,321,533, as applied to claims 1, 6, and 12 above, further in view Weiner, U.S. Patent 3,490,050, of record.

Kumar is applied as above. Kumar lacks anticipation of the apparatus used to heat the material and the apparatus used to align the particles in the material. Weiner discloses a method in which particles are aligned using an electric field, see Summary of the Invention. The apparatus used to practice the method of Weiner is shown in figure 1. The apparatus includes a heating chamber in which the material and substrate are disposed and capacitor plates 18 and 19 for inducing an electric field. It would have been obvious to one skilled in the art to use the apparatus disclosed by Weiner in the known method of Kumar to heat the polymer material and align the domains of the polymer material, since Weiner discloses this as a use of his apparatus. Weiner does not disclose the claimed strength of the electric field, see column 3, lines 38-43. However, in any case, it would have been an obvious matter of design choice bounded by well known manufacturing constraints and ascertainable by routine experimentation

and optimization to choose the particular claimed electric field because applicant has not disclosed that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical, and it appears prima facie that the process would possess utility using another electric field. Moreover, it has been held that limitations directed to processing parameters such as electric field strength are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical.

Claims 3, 10, 14, and 20 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Kumar, US Patent 5,321,533, as applied to claims 1 and 12 above, further in view of Szmanda et al., Pub. No. 2004/0131862, of record.

Claims 5, 7, 16, and 17 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Kumar, US Patent 5,321,533, further in view Weiner, U.S. Patent 3,490,050, as applied to claims 4 and 15 above, further in view of Szmanda et al., Pub. No. 2004/0131862, of record.

Neither Kumar nor Weiner disclose that the polymer material comprises poly(vinylidene fluoride-trifluoroethylene. Kumar broadly discloses the use of ferroelectric liquid crystal polymers, see, for example, column 4, lines 15-28. The co-polymer vinylidene fluoride-trifluoroethylene is a well-known ferroelectric polymers, see paragraphs [0004], [0013]-[0016] of the Szmanda et al. Patent. It would have been obvious to one skilled in the art that co-polymer vinylidene fluoride-trifluoroethylene could be substituted for the ferroelectric liquid crystal polymer of Kumar, since the co-

polymer vinylidene fluoride-trifluoroethylene is a ferroelectric polymer capable of domain alignment. In addition, Szmanda et al. teach that domains of vinylidene fluoride-trifluoroethylene polymers can be aligned using an electric field, see paragraphs [00031] and [0033]. Szmanda et al. also disclose the Curie temperature of ferroelectric polymers, see paragraph [0034]. Szmanda et al. also teach an annealing treatment for ferroelectric polymers that includes heating the polymer material above the Curie temperature for 1 minute to 12 hours, see paragraph [0036]. In light of the teachings of Szmanda et al. it would have been obvious to one skilled in the art that a vinylidene fluoride-trifluoroethylene co-polymer could be used in the known method of Cook, since vinylidene fluoride-trifluoroethylene co-polymers are well known polymers in the art which can be given a permanent electric polarization using an electric field, as used in the known method of Kumar.

Response to Arguments

Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additionally cited references liquid crystals dispersed in or used in conjunction with vinylidene fluoride-trifluoroethylene co-polymers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Wilczewski whose telephone number is (571) 272-1849. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra Smith can be reached on 571-272-2429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

M. Wilczewski
Primary Examiner
Tech Center 2800